CLAIMS

1. An AC-input/AC-output bidirectional power converter comprising converter cells, each of said cells comprising:

a first AC/DC converter which performs bidirectional power conversion between single-phase AC power and DC power;

a second AC/DC converter whose DC side is connected to the DC side of said first AC/DC converter, and which performs bidirectional power conversion between single-phase AC power and DC power;

a third AC/DC converter which performs bidirectional power conversion between single-phase AC power and DC power;

a fourth AC/DC converter whose DC side is connected to the DC side of said third AC/DC converter, and which performs bidirectional power conversion between single-phase AC power and DC power; and

a high-frequency transformer which is connected between the AC side of said second AC/DC converter and the AC side of said third AC/DC converter.

2. A power converter as claimed in claim 1, wherein the AC nodes of said first AC/DC converters in said plurality of converter cells are connected in series with each other, and the AC nodes of said fourth AC/DC converters in said plurality of converter cells are connected in series with each other.

3. A power converter as claimed in claim 1 or 2, wherein said power converter is directly connected, in each phase, to a three-phase AC power supply system.

4. A bidirectional power converter for performing bidirectional power conversion between AC and DC, comprising converter cells, each of said cells comprising:

a first AC/DC converter which performs bidirectional power conversion between single-phase AC power and DC power;

a second AC/DC converter whose DC side is connected to the DC side of said first AC/DC converter, and which performs bidirectional power conversion between single-phase AC power and DC power;

a third AC/DC converter which performs bidirectional power conversion between single-phase AC power and DC power; and

a high-frequency transformer which is connected between the AC side of said second AC/DC converter and the AC side of said third AC/DC converter.

5. A power converter as claimed in claim 4, wherein the AC nodes of said first AC/DC converters in said plurality of converter cells are connected in series with each other, and the DC nodes of said third AC/DC converters in said plurality of converter cells are connected in series with each other.

6. A power converter as claimed in claim 4, wherein the AC nodes of said first AC/DC converters in said plurality of converter cells are connected in series with each other, and the DC nodes of said third AC/DC converters in said plurality of converter cells are connected in parallel with each other.

7. A power converter as claimed in any one of claims 4 to 6, wherein the AC side of said power converter is directly connected in each phase to a three-phase AC power supply system.

8. A motor drive equipped with a power converter as claimed in any one of claims 1 to 7.

9. A BTB system comprising a power converter as claimed in any one of claims 1 to 3.

10. A grid-linking inverter system for linking between a DC system and an AC system, comprising a power converter as claimed in any one of claims 4 to 7.